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KIBABII UNIVERSITY

DEPARTMENT OF SCIENCE AND MATHEMATICS EDUCATION

MAIN CAMPUS

UNIVERSITY MAIN EXAMINATIONS

2016/2017 ACADEMIC YEAR

THIRD YEAR FIRST SEMESTER

FOR THE BED (SCIENCE) STUDENTS

COURSE CODE : **ESM 311**

COURSE TITLE : **MATHEMATICS EDUCATION**

DATE: 10/1/2018

TIME: 9.00-11.00 a.m.

INSTRUCTIONS TO CANDIDATES

Attempt question **ONE (1)** and **ANY TWO(2)** other questions
Read additional instructions under various sections

Kibabii University observes **ZERO** tolerance to examination cheating

This Paper Consists of 3 Printed Pages. Please Turn Over.

Question one

Question one

- i. Explain **four** General goals of teaching Mathematics. (8marks)
- ii. State and explain **three** importance of instructional objectives. (3marks)
- iii. a) Differentiate between cognitive and stimulus-Response theories. (2marks)
b) With examples each differentiate between deductive and inductive approach of teaching Mathematics. (4marks)
c) Describe **three** fixed response methods of learning mathematics (3marks)
- iv. State the **two** roles of a teacher in the laboratory method of teaching (2marks)
- v. State George Polya's steps of problem solving (4marks)
- vi. a) Define a scheme of work (1mark)
b) Outline **three** importance of a scheme of work (3marks)

Question two

- a) Bruner says that although there are **three** modes of representation, there are some other cognitive impulses that begin to evolve within the human being called cognitive entities. Explain **four** cognitive entities according to him (8marks)
- b) State and explain **four** implications of Bruner's cognitive theory of learning (8marks)
- c) Highlight any **four** applications of stimulus response theories in mathematics teaching (4marks)

Question three

- a) Explain **four** roles of laboratories in the teaching of mathematics (8marks)
- b) Explain **four** ways in which a teacher can make materials in the laboratory useful (4marks)
- c) Name **three** categories of materials that should be kept in the laboratories (3marks)
- d) What is the role of a teacher in free discovery method of learning? (2marks)
- e) State any **three** importance's of problem solving (3marks)

Question four

- a) Explain **five** roles of a textbook in the classroom (10marks)
- b) Describe **four** considerations when judging a good textbook (8marks)
- c) State **two** dangers of a textbook teaching (2marks)

Question five

- a) Explain **five** importance's of drawing a scheme of work (10marks)
- b) Outline **six** factors to be considered in designing a qualitative mathematics scheme of work (6marks)
- c) Write **eight** components of a scheme of work (4marks)